

# 2000 Index

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This index covers all technical items - papers, correspondence, reviews, etc. that appeared in this periodical during 2000, and items from previous years that were commented upon or corrected in 2000. Departments and other items may be also covered if they have been judged to have archival value.

The Author Index contains the primary entry for each item, listed under the first author's name. The primary entry includes the coauthors' names, the title of the paper or other item, and its location, specified by the publication abbreviation, year, month, and inclusive pagination. The Subject Index contains entries describing the item under all appropriate subject headings, plus the first author's name, the publication abbreviation, month, and year, and inclusive pages. Subject cross-references are included to assist in finding items of interest. Note that the item title is found only under the primary entry in the Author Index.

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- Autoregressive processes**; cf. Autoregressive moving average processes

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- Bandlimited signals**  
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- D high-speed video sens., RDS/IRDS filters. *Jung, M.*, T-CAS2 Sep 00 958-965
- II-based adjoint of op-amp based ccts. *Mohan, P.V.A.*, T-CAS2 Mar 00 233
- lin.-phase optimum FIR digital filters, min. filter length estim. *Ichige, K.*, T-CAS2 Oct 00 1008-1016
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- Band-pass filters**; cf. Channel bank filters
- Band-stop filters**  
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- Bandwidth compression**; cf. Compressors
- BiCMOS analog integrated circuits**  
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- Bipolar analog integrated circuits**  
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**Bi-quadratic filters**

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Boolean algebra; cf. Boolean functions

**Boolean functions**

Unified Complex Hadamard transform, logic fns. Rahardja, S., +, T-CAS2 Nov 00 1291-1297

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CMOS buffer without short-cct. power consumption, HSPICE simul. results. Changkai Yoo, T-CAS2 Sep 00 935-937

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Cascade networks; cf. Ladder networks

**CCD image sensors**

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RF continuous-time filters, loss-control feedback loop for VCO indirect tuning. Dandan Li, +, T-CAS2 Mar 00 169-175

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RNS arith. multiplier for medium and large moduli, VLSI layout implement. Hiasat, A.A., T-CAS2 Sep 00 931-940

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- Convergence; cf.** Convergence of numerical methods
- Convergence of numerical methods**  
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- Convergence of numerical methods; cf.** Numerical stability
- Converters**  
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- high-speed residue-to-binary converter for three-moduli (2<sup>k</sup>, 2<sup>k-1</sup>, 2<sup>k-1</sup>-1) RNS. VLSI implement. *Wang, W.*, +, T-CAS2 Dec 00 1576-1581
- Convolution**  
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- efficient archit. for multi-dimensional convolution. *Elnaggar, A.*, +, T-CAS2 Dec 00 1520-1523
- hardware-efficient DFT designs with cyclic convolution/subexpression sharing. *Tian-Sheuan Chang, +*, T-CAS2 Sep 00 886-892
- Unified Complex Hadamard transform, logic fns. *Rahardja, S.*, +, T-CAS2 Nov 00 1291-1297
- Convolutional codes**  
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- Coprocessors**  
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- Correlation methods**  
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- Correlation theory**  
1D PWL map in digital secure commun., dual-resoln. approach. *Li-Hai Zhou, +*, T-CAS2 Oct 00 1107-1111
- Correlators**  
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- Coupled circuits**  
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- Covariance matrices**  
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- Cross-talk**  
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- Cryptography**  
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- GF invert, C-testable bit-level systolic arrays, VLSI design. *Chih-Tsun Huang, +*, T-CAS2 Sep 00 909-918
- Current comparators**  
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- Current conveyors**  
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- II-based adjoint of op-amp based cts. *Mohan, P.V.A.*, +, T-CAS2 Mar 00 233

- universal act. element, op amp and current conveyors, four-terminal theory. *Schmid, H.*, T-CAS2 Nov 00 1160-1169
- Current mirrors**  
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- Current-mode circuits**  
CMOS current amps. with high-drive output stages, lin. perform. *Palmisano, G.*, +, T-CAS2 Oct 00 988-998  
CMOS current-mode classifier cct., modular design for template matching appl. *Bin-De Liu*, +, T-CAS2 Feb 00 145-151  
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current-mode all-pass filter, current differencing buffered amp. *Toker, A.*, +, T-CAS2 Sep 00 949-954  
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MOSFETs, saturation, pseudo-exponential fn. *Cheng-Chieh Chang*, +, T-CAS2 Nov 00 1318-1321
- Current-mode logic**  
enhanced folded source-coupled logic tech. for LV mixed-sig. IC. *Kandan, J.*, +, T-CAS2 Aug 00 810-817  
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- Curve fitting**  
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- D**
- Data compression**  
lossless and progressive image coding, optimal constr. of reduced pyramids. *Tzovaras, D.*, +, T-CAS2 Apr 00 332-348  
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- Data compression; cf.** Vector quantization
- Data conversion**  
residue-to-binary converters based on Chinese remainder theorems. *Yuke Wang*, T-CAS2 Mar 00 197-205  
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- Data flow graphs**  
VLSI low-power scheduling with resources operating at multiple voltages. *Wen-Tsong Shih*, +, T-CAS2 Jun 00 536-543
- Data structures; cf.** Tree data structures
- Decision diagrams**  
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- Decoding**  
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nonorthogonal chips, point-to-point connectivity using address events. *Boeken, K.A.*, T-CAS2 May 00 416-434  
RS decoder, low-power design, portable wireless appls. *Raghuopathy, A.*, +, T-CAS2 Nov 00 1254-1270
- Delay circuits**  
CMOS pulse shrinking delay element, time interval meas. *Chen, P.*, +, T-CAS2 Sep 00 954-958
- Delay circuits; cf.** Delay filters; Delay lines
- Delay estimation**  
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- Delay filters**  
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- variable fractional delay 2D FIR digital filters, WLS design. *Deng, T.B.*, +, T-CAS2 Feb 00 114-124
- Delay filters; cf.** Linear phase filters
- Delay lines**  
1D PWL map in digital secure commun., dual-resoln. approach. *Li-Hai Zhou*, +, T-CAS2 Oct 00 1107-1111
- Delays**  
CMOS submicron logic ccts., current/delay/power anal., anal. model. *Hamoui, A.A.*, +, T-CAS2 Oct 00 999-1007  
high-speed DRAM interface, on-chip clock-adjusting cct. *Noda, H.*, +, T-CAS2 Aug 00 771-775  
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inner-product proc. for multi-valued exponent. bidirect. associative memory. *Chua-Chin Wang*, +, T-CAS2 Nov 00 1271-1278  
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RNS arith. multiplier for medium and large moduli, VLSI layout implement. *Hasat, A.A.*, T-CAS2 Sep 00 937-940  
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- Delays; cf.** Delay estimation
- Delta modulation**  
sub- $\mu$  capacitive sens., microfab. transducers, correl. double sampling. *DM. Ranganathan, S.*, +, T-CAS2 Nov 00 1170-1176
- Delta modulation; cf.** Delta-sigma modulation; Sigma-delta modulation
- Delta-sigma modulation**  
fourth-order continuous-time LC delta-sigma modulator for UHF A/D conversion. *Cherry, J.A.*, +, T-CAS2 Jun 00 518-530  
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time-interleaved oversampling delta-sigma converters, efficient hardware archits. *Kozak, M.*, +, T-CAS2 Aug 00 802-810
- Design engineering; cf.** Design for manufacture; Design for testability
- Design for manufacture**  
MEMS, behavioral modeling. *Dewey, A.*, +, T-CAS2 Feb 00 105-113
- Design for testability**  
CMOS/BiCMOS logic ccts., delay fault testing, DFT. *Raahemfar, K.*, +, T-CAS2 Nov 00 1279-1290  
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unpowered densely loaded cct. boards, analog fault diagnosis, test point selection. *Huang, J.-L.*, +, T-CAS2 Oct 00 977-987
- Design of experiments**  
MEMS, behavioral modeling. *Dewey, A.*, +, T-CAS2 Feb 00 105-113
- Diagrams; cf.** Decision diagrams; Nomograms
- Dielectric properties; cf.** Capacitance
- Differential amplifiers**  
CMOS LV op amp and differential difference amp. design, lin. transconductor. *Lee, E.K.F.*, T-CAS2 Aug 00 776-778  
CMOS variable gain amp., digitally prog. for low-power mixed-sig. appls. *Ehwan, H.O.*, +, T-CAS2 May 00 388-398  
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fully differential amp. design, systematic mapping approach. *Gonggui Xu*, +, T-CAS2 Nov 00 1343-1347  
LV bandgap ref. using transimpedance amp., design. *Yueming Jiang*, +, T-CAS2 Jun 00 552-555  
sense amp. for memory and small-swing CMOS logic cct. appls. *Kristovski, G.V.*, +, T-CAS2 Jun 00 573-576  
systematic approach in constructing fully differential amps. *Xu, G.*, +, T-CAS2 Dec 00 1547-1550
- Digital-analog conversion**  
high-order vector sigma-delta modulators, config., stabil., perform. anal. *Bourdopoulos, G.I.*, +, T-CAS2 Jun 00 493-503  
high-performance analog-to-digital and digital-to-analog converters (special issue). *T-CAS2 Jul 00 585-663*  
LV analog cct. design based on biased inverting opamp config. *Karthikayan, S.*, +, T-CAS2 Mar 00 176-184  
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pipelined ADCs, digital cancellation DAC noise. *Galton, I.*, T-CAS2 Mar 00 185-196  
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thermometer-decoded DAC arrays, gradient error compensation, switching seq. optim. *Yonghua Gong*, +, T-CAS2 Jul 00 585-595



# Digital-analog conversion; cf. Delta-sigma modulation

## Digital arithmetic

- CMOS full-adder cell, high-perform. 1 bit design. *Shams, A.M., +, T-CAS2 May 00 478-481*
- folding ADC preprocess. archit. using robust symmet. no. syst. with gray-code props. *Pace, P.E., +, T-CAS2 May 00 462-467*
- inner-product proc. for multi-valued exponent. bidirect. associative memory. *Chua-Chin Wang, +, T-CAS2 Nov 00 1271-1278*
- inner-product proc. overflow handling, chained adders. *Elguibaly, F., T-CAS2 Oct 00 1086-1090*
- low-complexity power-sum cct. for GF(2<sup>m</sup>) and appls. *Jyh-Huei Guo, +, T-CAS2 Oct 00 1091-1097*
- low-power FIR filter realization with differential coeffs. and inputs. *Tian-Sheuan Chang, +, T-CAS2 Feb 00 137-145*
- morph. image filter chip using modified decoding fn. *Soohwan Ong, +, T-CAS2 Sep 00 876-885*
- multicarrier QAM modulator, PLD and CORDIC-based modulators. *Fankai, J., +, T-CAS2 Jan 00 1-10*
- two's-complement fixed-width multiplier, error-compensation bias, digital FIR filter. *Lin-Da Van, +, T-CAS2 Oct 00 1112-1118*

## Digital arithmetic; cf. Carry logic; Coprocessors; Fixed point arithmetic; Floating point arithmetic; Pipeline arithmetic; Residue number systems

### Digital circuits

- mapping from phase to sine-amplitude in direct digital freq. synthesizers using parabolic approx. *Sodaggar, A.M., +, T-CAS2 Dec 00 1452-1457*

### Digital circuits; cf. Adders; Digital filters

### Digital communication

- 1D PWL map in digital secure comm., dual-resoln. approach. *Li-Hai Zhou, +, T-CAS2 Oct 00 1107-1111*
- ambiguity resistant precoders, optimal, ISI/multipath cancellation. *Xiang-Gen Xia, +, T-CAS2 Aug 00 746-756*

### Digital control

- CMOS variable gain amp., digitally prog. for low-power mixed-sig. appls. *Elwan, H.O., +, T-CAS2 May 00 388-398*
- interface cct. for CCD camera based on digitally controlled capacitor-segment comb. *Tae-Hwan Oh, +, T-CAS2 Nov 00 1338-1343*

### Digital filters

- approx. of classical IIR filters with additional specs. *Dam, H.H., +, T-CAS2 Dec 00 1536-1540*
- CMOS LPTV digital filter, portable audio appls. *Suvakov, D., +, T-CAS2 Nov 00 1297-1300*

- complex Chebyshev approx. for IIR digital filters based on eigenvalue problem. *Zhang, X., +, T-CAS2 Dec 00 1429-1436*
- constrained FIR filter design by method of vector space projections. *Haddad, K.C., +, T-CAS2 Aug 00 714-725*

- design of two-channel lin. phase FIR PR filter banks with even length filters using convolution matrices. *Muthukuel, A., +, T-CAS2 Dec 00 1413-1418*

- detect guided NLMS estim. of sparsely parameterized channels. *Homer, J., T-CAS2 Dec 00 1437-1442*

- discrete coeff. FIR and IIR digital filters with prefilter-equalizer struct., design. *Oh, H.J., +, T-CAS2 Jun 00 562-565*

- envelope-constrained H<sub>∞</sub> FIR filter design, lin. matrix inequalities. *Zhiqiang Tan, +, T-CAS2 Jan 00 79-82*

- FIR digital all-pass filters, min. design. *Her-Chang Chao, +, T-CAS2 Jun 00 576-580*

- generation and implement. using multidimensional systs. *Samadi, S., +, T-CAS2 Mar 00 214-221*

- lin.-phase optimum FIR digital filters, min. filter length estim. *Ichige, K., +, T-CAS2 Oct 00 1008-1016*

- lin. time-varying digital filters, d-shift invertibility and inverses. *Wang, S., +, T-CAS2 Oct 00 1126-1131*

- low-power FIR filter realization with differential coeffs. and inputs. *Tian-Sheuan Chang, +, T-CAS2 Feb 00 137-145*

- morph. image filter chip using modified decoding fn. *Soohwan Ong, +, T-CAS2 Sep 00 876-885*

- orthogonal IIR digital filters, pipelined CORDIC-based cascade implement. *Ma, J., +, T-CAS2 Nov 00 1238-1253*

- power-of-two adaptive filters using tabu search adaptive algm. *Traferro, S., +, T-CAS2 Jun 00 566-569*

- prog. fractional sample delay filters, flatness, magnitude response/group delay. *Soo-Chang Pei, +, T-CAS2 Aug 00 783-787*

- roundoff noise minimization in modified direct form delta operator IIR struct. *Wong, N., +, T-CAS2 Dec 00 1533-1536*

- running max/min filter, worst-case perform. improvement. *Brookes, M., T-CAS2 Sep 00 930-935*

- simultaneous sampling systs. design based on fractional delay Lagrange filters. *Luengo, D., +, T-CAS2 May 00 482-485*

- two's-complement fixed-width multiplier, error-compensation bias, digital FIR filter. *Lin-Da Van, +, T-CAS2 Oct 00 1112-1118*

# Digital filters; cf. Multidimensional digital filters; Quadrature mirror filters; Recursive filters; Wave digital filters

## Digital integrated circuits; cf. Cellular arrays; Integrated logic circuits

## Digital signal processing chips

- AUTOSCALER for C, optimizing floating-point to integer C program converter for fixed-point DSPs. *Ki-Ii Kum, +, T-CAS2 Sep 00 840-848*

- DCT computation, compact recursive struct. for VLSI realization. *Jar-Ferr Yang, +, T-CAS2 Apr 00 314-321*

- DFT computations, high-throughput lin. arrays, band-matrix-vector multiplications. *Shen-Fu Hsiao, +, T-CAS2 Nov 00 1188-1203*

- double-face bit-serial archit. for 1D discrete wavelet transform, DSP ASICs. *Marino, F., T-CAS2 Jan 00 65-71*

- fast sine/cosine eval., floating-point proc. VLSI archit. and CMOS implement. *Pailouras, V., +, T-CAS2 May 00 441-451*

- software synthesis and code generation. *Bhattacharyya, S.S., +, T-CAS2 Sep 00 849-875*

## Digital simulation

- threshold logic gates containing reson. tunneling diodes, noise margins. *Bhattacharyya, M., +, T-CAS2 Oct 00 1080-1085*

## Digital storage; cf. Content-addressable storage

## Digital systems; cf. Digital communication; Real-time systems

## Discrete cosine transforms

- compact recursive struct. for DCT computation. *Jar-Ferr Yang, +, T-CAS2 Apr 00 314-321*

- D-FANN, dyn.-functional ANN, DCT-based, nonlin. adaptive time series prediction. *Eliott, T., +, T-CAS2 Oct 00 1131-1134*

- new algm. for multidimensional type-III DCT. *Zeng, Y., +, T-CAS2 Dec 00 1523-1529*

## Discrete Fourier transforms

- CATV amp., composite triple-beat distortion, num. device simul. *Loechelt, G.H., +, T-CAS2 Nov 00 1145-1151*

- hardware-efficient DFT designs with cyclic convolution/subexpression sharing. *Tian-Sheuan Chang, +, T-CAS2 Sep 00 886-892*

- high-throughput lin. arrays, band-matrix-vector multiplications. *Shen-Fu Hsiao, +, T-CAS2 Nov 00 1188-1203*

- indiv. running harmonics, nonrecursive computation of DFT. *Exposito, A.G., +, T-CAS2 Aug 00 779-782*

## Discrete Hartley transforms

- generalized DHT, composite seq. lengths. *Guan, Bi, +, T-CAS2 Sep 00 893-901*

## Discrete systems; cf. Discrete time systems

## Discrete time filters

- polynomial-based interpol. filters using Farrow struct., freq. domain approach. *Vesma, J., T-CAS2 Mar 00 206-209*

## Discrete time filters; cf. Sampled data filters

## Discrete time systems

- winner-take-all discrete recurrent neural networks. *Yi, Z., +, T-CAS2 Dec 00 1584-1589*

## Discrete transforms

- 2D discrete Hadamard transform computation, fast 1D paired transforms. *Grigoryan, A.M., +, T-CAS2 Oct 00 1098-1103*

- design and appl. of discrete-time fractional Hilbert transformer. *Tseng, C.-C., +, T-CAS2 Oct 00 1529-1533*

- discrete fractional Hilbert transform. *Soo-Chang Pei, +, T-CAS2 Nov 00 1307-1311*

- Discrete transforms; cf. Discrete cosine transforms; Discrete Fourier transforms; Discrete Hartley transforms; Discrete wavelet transforms

## Discrete wavelet transforms

- double-face bit-serial archit. for 1D discrete wavelet transform, DSP ASICs. *Marino, F., T-CAS2 Jan 00 65-71*

- efficient high-speed/low-power pipelined archit. for direct 2D discrete wavelet transform. *Marino, F., T-CAS2 Dec 00 1476-1491*

- highly efficient high-speed/low-power archts. for 1D discrete wavelet transform. *Marino, F., +, T-CAS2 Dec 00 1492-1502*

- stochastic sigs. rel. between time-series models and DWT. *Veselinovic, D., +, T-CAS2 May 00 485-489*

## Distributed algorithms; cf. Parallel algorithms

## Distributed parameter networks

- multilayer and multiconductor interconnects, transient response simul. *Watanabe, T., +, T-CAS2 Apr 00 302-305*

- multiport distributed interconnect networks, transient simul. algm. *Achar, R., +, T-CAS2 Apr 00 287-301*

## Distributed processing; cf. Parallel processing; Pipeline processing

## DRAM chips

- high-speed DRAM interface, on-chip clock-adjusting cct. *Noda, H., +, T-CAS2 Aug 00 771-775*

Dynamic programming; cf. Integer programming  
Dynamic response; cf. Transient response

## E

## Ear

analog cochlear implant, micropower current-mode log-domain cct. design. *Germanovix, W.*, +, T-CAS2 Oct 00 1023-1046

## Echo suppression

detect, guided NLMS estim. of sparsely parametrized channels. *Homer, J.*, T-CAS2 Dec 00 1437-1442

## Edge detection

design and appl. of discrete-time fractional Hilbert transformer. *Tseng, C.-C.*, +, T-CAS2 Dec 00 1529-1533  
discrete fractional Hilbert transform. *Soo-Chang Pei*, +, T-CAS2 Nov 00 1307-1311

Si retina chip with central foveal region for 2D tracking. *Etienne-Cummings, R.*, +, T-CAS2 Jun 00 504-517

## Eigenvalues and eigenfunctions

complex Chebyshev approx. for IIR digital filters based on eigenvalue problem. *Zhang, X.*, +, T-CAS2 Dec 00 1429-1436  
near perfect reconstruction modulated filter banks, real/complex coeff. QMF prototypes. *Argenti, F.*, +, T-CAS2 Aug 00 787-792  
signed self-orthogonalizing adaptive lattice filter, eigenvalue disparity. *Kim, D.I.*, +, T-CAS2 Nov 00 1227-1237

Electrical faults; cf. Electric distortion

## Electric distortion

CATV amp., composite triple-beat distortion, num. device simul. *Loechelt, G.H.*, +, T-CAS2 Nov 00 1145-1151  
time-scaled elec. networks, props. and appls. in prog. analog filter design. *Pavan, S.*, +, T-CAS2 Feb 00 161-165

Electric impedance; cf. Electric impedance

## Electric impedance

continuous-time common-mode feedback cct. for high-imped. current-mode appls. *Lah, L.*, +, T-CAS2 Apr 00 363-369

Electronic sensing devices; cf. Capacitive sensors

Electronic design automation; cf. Circuit CAD; Circuit layout CAD

Electronic engineering; cf. Low-power electronics

Electronic engineering computing; cf. Circuit analysis computing; Logic CAD; Logic simulation; SPICE

Electronic equipment testing; cf. Circuit testing

## Elemental semiconductor

Si analog cochlear implant, micropower current-mode log-domain cct. design. *Germanovix, W.*, +, T-CAS2 Oct 00 1023-1046

Si IC spiral inductors, design optimization, phys. model. *Post, J.E.*, T-CAS2 Jan 00 15-17

Si retina chip with central foveal region for 2D tracking. *Etienne-Cummings, R.*, +, T-CAS2 Jun 00 504-517

## Elliptic filters

2-D FIR filters design using least sq. error with scaling-free McClellan transform. *Hung-Ching Lu*, +, T-CAS2 Oct 00 1104-1107

MOSFET-only  $g_m$ -C-OTA filter. *Lindfors, S.*, +, T-CAS2 Feb 00 89-95

## Encoding

neuromorphic chips, point-to-point connectivity using address events. *Boeken, K.A.*, T-CAS2 May 00 416-434

Encoding; cf. Channel coding; Coding errors; Image coding; Vector quantization

## Equalizers

discrete coeff. FIR and IIR digital filters with prefilter-equalizer struct. design. *Oh, H.J.*, +, T-CAS2 Jun 00 562-565

FIR equalizers, lin. phase and min. phase types, freq. domain design. *Nagel, P.*, T-CAS2 Nov 00 1347-1351

overcoming time-varying co-channel interf. using type-2 fuzzy adaptive filters. *Liang, Q.*, +, T-CAS2 Dec 00 1419-1428

Equiripple filters; cf. Elliptic filters

## Equivalent circuits

current mode MUX/XOR and D flip-flop, modeling and optimized design. *Alloia, M.*, +, T-CAS2 May 00 452-461

embedded pass., model libraries, network synthesis, RF ccts. *Choi, K.L.*, +, T-CAS2 Apr 00 249-260

VLSI syst., partial element equiv. cct. models, large interconnect reduced-order modeling. *Cullum, J.*, +, T-CAS2 Apr 00 261-273

## Error analysis

fast sine/cosine eval., floating-point proc. VLSI archit. and CMOS implement. *Pallouras, P.*, +, T-CAS2 May 00 441-451

## Error compensation

high-order log-domain ladder filter freq. responses, effects of transistor nonidealities. *Leung, V.W.*, +, T-CAS2 May 00 373-387

thermometer-decoded DAC arrays, gradient error compensation, switching seq. optim. *Ponghua Gong*, +, T-CAS2 Jul 00 585-595

two's-complement fixed-width multiplier, error-compensation bias, digital FIR filter. *Lan-Da Van*, +, T-CAS2 Oct 00 1112-1118

## Error correction

MASH ADCs, adaptive digital correction of analog errors, test-sig. injection. *Kias, P.*, +, T-CAS2 Jul 00 629-638

## Error correction codes

GF inverter, C-testable bit-level systolic arrays, VLSI design. *Chih-Tsun Huang*, +, T-CAS2 Sep 00 909-918

RS decoder, low-power design, portable wireless appls. *Raghupathy, A.*, +, T-CAS2 Nov 00 1254-1270

## Error detection

fault-tolerant FFT butterfly networks, C-testable design, VLSI. *Jin-Fu Li*, +, T-CAS2 Sep 00 919-929

## Errors

FIR digital all-pass filters, min. design. *Her-Chang Chao*, +, T-CAS2 Jun 00 576-580

high-order vector sigma-delta modulators, config., stabil., perform. anal. *Bourdopoulos, G.I.*, +, T-CAS2 Jun 00 493-503

pipelined A/D conversion, lin. capacitor error-averaging techs. *Yun Chiu*, T-CAS2 Mar 00 229-232

Errors; cf. Coding errors; Roundoff errors

## Estimation theory

detect, guided NLMS estim. of sparsely parametrized channels. *Homer, J.*, T-CAS2 Dec 00 1437-1442

least mean  $M$ -estimate algms. for robust adaptive filtering in impulse noise. *Zou, Y.*, +, T-CAS2 Dec 00 1564-1569

Estimation theory; cf. Maximum likelihood estimation; Recursive estimation

## F

## Fast Fourier transforms

fast subsampled-undersampled fast Newton transversal filter algm. for adaptive filtering. *Manouche, K.*, +, T-CAS2 Oct 00 1047-1058

fault-tolerant FFT butterfly networks, C-testable design, VLSI. *Jin-Fu Li*, +, T-CAS2 Sep 00 919-929

multidimensional FFT based on 1D decomp., periodic sigs. *Bernardini, R.*, T-CAS2 Oct 00 1123-1126

partitioned freq.-domain adaptive filters, real-time appls. *Joho, M.*, +, T-CAS2 Aug 00 685-698

Fast Fourier transforms; cf. Discrete Fourier transforms

Fault currents; cf. Leakage currents

## Fault diagnosis

neural net based analog cct. fault diagnosis using wavelet transform as preprocessor. *Aminian, M.*, +, T-CAS2 Feb 00 151-156

unpowered densely loaded cct. boards, analog fault diagnosis, test point selection. *Huang, J.-L.*, +, T-CAS2 Oct 00 977-987

Fault tolerance; cf. Fault tolerant computing

Fault tolerant computing

FFT butterfly networks, C-testable design, VLSI. *Jin-Fu Li*, +, T-CAS2 Sep 00 919-929

## Feedback

morph. image filter chip using modified decoding fn. *Sookwan Ong*, +, T-CAS2 Sep 00 876-885

Feedback; cf. Circuit feedback

## Feedback amplifiers

front-end electronics for photodetector sig. proc., optim. *Rovati, C.*, T-CAS2 May 00 399-407

fully differential amp. design, systematic mapping approach. *Gonggui Xu*, +, T-CAS2 Nov 00 1343-1347

universal act. element, on amp and current conveyors, four-terminal theory. *Schmid, H.*, T-CAS2 Nov 00 1160-1169

## Feedforward

time-interleaved delta-sigma modulators, cascaded integrators, conversion bandwidth. *Kozak, M.*, +, T-CAS2 Jul 00 639-654

Field effect analog integrated circuits; cf. MOS analog integrated circuits

Field effect digital integrated circuits; cf. Field effect logic circuits

Field effect integrated circuits; cf. MOS integrated circuits

## Field effect logic circuits

threshold logic gates containing reson. tunneling diodes, noise margins. *Bhattacharya, M.*, +, T-CAS2 Oct 00 1080-1085

Field effect transistor circuits; cf. MOSFET circuits

Field effect transistors; cf. Field effect transistor switches

## Field effect transistor switches

high-speed fully differential current switch, CMOS Si  $\Sigma$ A modulator appl. *Luh, L.*, +, T-CAS2 Apr 00 358-363

## Field programmable gate arrays

pipelined field-prog. logic design, optimum SNS-to-binary conversion algm. *Pace, P.E.*, +, T-CAS2 Aug 00 736-745

## Filtering theory

adaptive filtering algms. with data correl., tracking perform. degrad. *Eweda, E.*, T-CAS2 Jun 00 559-561

- angle-constrained IIR filter pipelining for reduced coeff. sensitivities.  
*Jin-Gyun Chung, +, T-CAS2 Jun 00 555-559*
- digital filter generation and implement. using multidimensional systs.  
*Samadi, S., +, T-CAS2 Mar 00 214-221*
- discrete coeff. FIR and IIR digital filters with prefilter-equalizer struct., design. *Oh, H.J., +, T-CAS2 Jun 00 562-565*
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- FIR equalizers, lin. phase and min. phase types, freq. domain design.  
*Nagel, P., T-CAS2 Nov 00 1347-1351*
- ladder WDF, synthesis and pipelining. *Sang-Min Kim, +, T-CAS2 Mar 00 222-229*
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- Filters**
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- Filters; cf. Active filters; Adaptive filters; All-pass filters; Band-pass filters; Band-stop filters; Delay filters; Digital filters; Discrete time filters; FIR filters; High-pass filters; IIR filters; Kalman filters; Ladder filters; Lattice filters; Low-pass filters; Nonlinear filters; Passive filters; Programmable filters; Radiofrequency filters; Resonator filters; Time-varying filters; Tracking filters
- Finite difference methods;** cf. Finite difference time-domain analysis
- Finite difference time-domain analysis**
- multilayer and multiconductor interconnects, transient response simul. *Watanabe, T., +, T-CAS2 Apr 00 302-305*
- FIR filters**
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- constrained FIR filter design by method of vector space projections. *Haddad, K.C., +, T-CAS2 Aug 00 714-725*
- design of two-channel lin. phase FIR PR filter banks with even length filters using convolution matrices. *Muthuvel, A., +, T-CAS2 Dec 00 1413-1418*
- detect. guided NLMS estim. of sparsely parametrized channels. *Homer, J., T-CAS2 Dec 00 1437-1442*
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- Flop-flops**
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- Flow graphs;** cf. Data flow graphs; Signal flow graphs
- Focal planes**
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- Image processing**; cf. Computer vision; Image coding; Image motion analysis; Stereo image processing
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- Image sensors**; cf. CCD image sensors; CMOS image sensors; Focal planes
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- Integrated circuits;** cf. Analog integrated circuits; High-speed integrated circuits; Monolithic integrated circuits; UHF integrated circuits
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- Interconnections;** cf. Integrated circuit interconnections
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- Intermodulation distortion**
- RFIC simul., computer-aided cct. anal. tools, mixed freq.-time methods. *Mayaram, K., +, T-CAS2 Apr 00 274-286*
- Interpolation**
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## Large scale integration; cf. VLSI

## Lattice filters

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## Lattice networks; cf. Lattice filters

## Leakage currents

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## Learning (artificial intelligence); cf. Backpropagation

## Least mean squares methods

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## Least squares approximations; cf. Least mean squares methods

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## Linear codes

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## Logic arrays; cf. Programmable logic arrays

## Logic CAD

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## Logic CAD; cf. High level synthesis

## Logic circuits; cf. Asynchronous circuits; Integrated logic circuits

## Logic design

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## Logic programming; cf. Constraint handling

## Logic simulation

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**Mathematics;** cf. Arithmetic; Estimation theory; Mathematical morphology; Mathematical operators; Number theory; Optimization

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**Micromechanical resonators**  
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**MMIC amplifiers**  
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**MOS integrated circuits**  
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**MOS integrated circuits;** cf. CMOS integrated circuits; MOS analog integrated circuits

**MOS logic circuits;** cf. CMOS logic circuits

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*Samadi, S.*, +, T-CAS2 Mar 00 214-221
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- digital filter generation and implement. using multidimensional systs.  
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**Network analysis; cf. Linear network analysis; Nonlinear network analysis****Network parameters**

- differential CMOS VCO, phase noise, 1.9-GHz appls. *Hersel, F.*, +, T-CAS2 Jan 00 11-15

- Networks (circuits); cf. Amplifiers; Analog circuits; Buffer circuits; Cascade networks; Comparators (circuits); Coupled circuits; Current-mode circuits; Delay circuits; Distributed parameter networks; Equalizers; Equivalent circuits; Filters; Integrating circuits; Mixers (circuits); Modulators; Multiplying circuits; Multiterminal networks; Passive networks; Power supply circuits; Programmable circuits; Pulse circuits; Reference circuits; Sampled data circuits; Switching circuits; Time-varying networks**

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- current-mode exponential amp., analog cct. archit. *Panagiotopoulos, D.A.*, +, T-CAS2 Jun 00 548-552
- design of two-channel lin. phase FIR PR filter banks with even length filters using convolution matrices. *Muthuel, A.*, +, T-CAS2 Dec 00 1413-1418
- variable fractional delay 2D FIR digital filters, WLS design. *Deng, T.-B.*, +, T-CAS2 Feb 00 114-124

**Network synthesis; cf. Circuit CAD; Circuit optimization; Integrated circuit design****Neural chips**

- current-mode exponential amp., analog cct. archit. *Panagiotopoulos, D.A.*, +, T-CAS2 Jun 00 548-552
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- analog cct. fault diagnosis, neural net based using wavelet transform as preprocessor. *Amnian, M.*, +, T-CAS2 Feb 00 151-156
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- noise anal. of externally lin. systs. *Toth, L.*, +, T-CAS2 Dec 00 1365-1377
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**Nomograms**

- RF IC design, inductors and transformers, systematic anal. and modeling. *Konstantopoulos, I.A.*, +, T-CAS2 Aug 00 699-713

**Nonlinear distortion; cf. Harmonic distortion; Intermodulation distortion****Nonlinear filters**

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- differential CMOS VCO, phase noise, 1.9-GHz appls. *Hersel, F.*, +, T-CAS2 Jan 00 11-15
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- autoregressive param. estim. from noisy data, least-sq. based method. *Wei King-Zheng, T-CAS2 Jan 00 71-75*
- digit-serial sig. proc. archts., design. *Saglam, B.E., +, T-CAS2 Apr 00 369-370*
- unconstrained min. L<sub>1</sub>-norm optim., least absol. deviation model, time delay estim. *Wang, Z., +, T-CAS2 Nov 00 1214-1226*
- wavelet transform-domain LMS algm., computational load reduction. *Attallah, S., T-CAS2 Mar 00 209-213*
- Signal processing; cf. Adaptive signal processing; Array signal processing; Audio signal processing; Convolution; Data compression; Digital signal processing chips; Image processing; Multidimensional signal processing; Signal reconstruction; Signal sampling; Speech processing**
- Signal processing equipment**
- front-end electronics for photodetector sig. proc., optim. *Rovati, L., T-CAS2 May 00 399-407*

**Signal processing equipment; cf. Image processing equipment****Signal reconstruction**

- bandlimited sig. interpolation, stochastic formulation. *Hyekho Choi, +*, *T-CAS2 Jan 00 82-85*  
 lin. periodic time-varying filters, periodic clock changes. *Duverdier, A. +*, *T-CAS2 Nov 00 1152-1159*  
 quantized multidimensional sigs., optimal subband coders, image coders. *Strintzis, M.G.*, *T-CAS2 Aug 00 757-770*

**Signals; cf. Bandlimited signals****Signal sampling**

- bandpass  $\Sigma\Delta$  modulator, undersampling of RF sigs. for wireless commun. *Hussein, A.I. +*, *T-CAS2 Jul 00 614-620*  
 high-speed SC time-interleaved ADCs, global pass. sampling tech. *Gustavsson, M. +*, *T-CAS2 Sep 00 821-831*  
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 noise-shaping clock generators for SC filters, comparison. *Zeng, R.W. +*, *T-CAS2 Jun 00 544-547*  
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 time-interleaved ADCs, timing-error effects, digital-background calib. tech. *Huawen Jin, +*, *T-CAS2 Jul 00 603-613*

**Signal synthesis**

- orthogonal sigs., analog synthesizer. *Chesnokov, V.*, *T-CAS2 Feb 00 125-132*

**Silicon**

- Si analog cochlear implant, micropower current-mode log-domain cct. design. *Germanov, W. +*, *T-CAS2 Oct 00 1023-1046*  
 Si IC spiral inductors, design optimization, phys. model. *Post, J.E.*, *T-CAS2 Jan 00 15-17*  
 Si retina chip with central foveal region for 2D tracking. *Etienne-Cummings, R. +*, *T-CAS2 Jun 00 504-517*

**Simulated annealing**

- AUTOSCALE for C, optimizing floating-point to integer C program converter for fixed-point DSPs. *Ki-Il Kum, +*, *T-CAS2 Sep 00 840-848*  
 Simulation; cf. Circuit simulation; Digital simulation; Logic simulation

**Singular value decomposition**

- A/D converters, time-domain anal., hybrid Newton/Gauss-Newton algm. *Haddadi, D. +*, *T-CAS2 Jul 00 655-659*

**Skin effect**

- Krylov-subspace based reduced-order models, nearly optimally compact model generation. *Kamon, M. +*, *T-CAS2 Apr 00 239-248*

**Software engineering; cf. Software libraries****Software libraries**

- embedded pass., model libraries, network synthesis, RF ccts. *Choi, K.L. +*, *T-CAS2 Apr 00 249-260*

**Sparse matrices**

- reverse jacket transform and fast algm., matrix decomp. *Moon Ho Lee*, *T-CAS2 Jun 00 39-47*

**Special issues and sections**

- advances in simulation of high-speed circuits and interconnects (special section). *T-CAS2 Apr 00 237-305*  
 advances in simulation of high-speed circuits and interconnects, special section intro. *Nakhla, M. +*, *T-CAS2 Apr 00 237-238*  
 circuits and systems for wireless communications (special section). *T-CAS2 Jan 00 1-27*  
 high-performance analog-to-digital and digital-to-analog converters (special issue). *T-CAS2 Jul 00 585-663*

**Spectral analysis**

- ind. running harmonics, nonrecursive computation of DFT. *Exposito, A.G. +*, *T-CAS2 Aug 00 779-782*

**Speech processing**

- D-FANN, dyn.-functional ANN, DCT-based, nonlin. adaptive time series prediction. *Eltolji, T. +*, *T-CAS2 Oct 00 1131-1134*

**SPICE**

- CMOS buffer without short-cct. power consumption, HSPICE simul. results. *Changik Yoo*, *T-CAS2 Sep 00 935-937*  
 CMOS LNA SPICE simul., source-degeneration inductor. *Hau-Yiu Tsui, +*, *T-CAS2 Jan 00 62-65*  
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**Stability; cf. Circuit stability; Numerical stability**

**Statistical analysis; cf. Design of experiments; Maximum likelihood estimation**

**Statistical process control**

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**Statistics; cf. Monte Carlo methods; Time series**

**Stereo image processing**

sub-pixel resolu. binocular visual tracking using analog VLSI vision sensors. *Lu, Z. +*, *T-CAS2 Dec 00 1468-1475*

**Stochastic processes**

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**Stochastic processes; cf. Autoregressive processes**

**Surveillance**

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**Switched capacitor circuits**

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**Switched capacitor filters**

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**Switched capacitor networks**

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**Switched capacitor networks; cf. Switched capacitor filters****Switched current circuits**

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**Switched filters; cf. Switched capacitor filters**

**Switched networks; cf. Switched capacitor networks; Switched current circuits**

**Switching circuits**

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**Synchronization**

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**Systolic arrays**

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**Telecommunication; cf. Digital communication; Telecommunication channels; Telecommunication security**

**Telecommunication channels**

detect. guided NLMS estim. of sparsely parametrized channels. *Homer, J.*, *T-CAS2 Dec 00 1437-1442*



- Telecommunication channels; cf.** Multipath channels; Time-varying channels
- Telecommunication equipment; cf.** Companders; Receivers; Repeaters
- Telecommunication networks; cf.** Personal communication networks
- Telecommunication security**  
 1D PWL map in digital secure comm., dual-resoln. approach. *Li-Hai Zhou, +, T-CAS2 Oct 00 1107-1111*
- Telecommunication switching; cf.** Multiplexing
- Telephone equipment; cf.** Companders
- Television; cf.** Cable television
- Testing; cf.** Automatic testing; Logic testing; Production testing
- Threshold logic**  
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- Time-domain analysis**  
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- Time-domain synthesis**  
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- Time-frequency analysis**  
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- Time measurement**  
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- Time series**  
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- Time-varying filters**  
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- Time-varying networks**  
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- Time-varying systems; cf.** Time-varying networks
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- Toeplitz matrices**  
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- Tolerance analysis**  
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- Tracking; cf.** Target tracking; Tracking filters
- Tracking filters**  
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- Transceivers**  
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- Transforms; cf.** Discrete transforms; Hadamard transforms; Hilbert transforms; Wavelet transforms; Z transforms
- Transient analysis**  
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- Transmitters; cf.** Repeaters
- Tree data structures**  
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- Two-port networks**  
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- UHF amplifiers**  
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- UHF circuits; cf.** UHF integrated circuits
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- fast VQ, extended mean-dist.-ordered search algm. *Sun-Young Choi*, +, T-CAS2 Apr 00 349-352

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- neumorphic aVLSI model of global motion proc. in fly. *Liu, S.-C.*, T-CAS2 Dec 00 1458-1467

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- high-speed recursive digital filters based on freq.-response masking approach. *Johansson, H.*, +, T-CAS2 Jan 00 48-61
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- LMS filtering, white meas. noise, unbiased param. estim. *Ying Zhang*, +, T-CAS2 Sep 00 968-972

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- digital filter generation and implement. using multidimensional systs. *Samadi, S.*, +, T-CAS2 Mar 00 214-221